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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/003,239 | 12/06/2001 | Roger J. W. Croad | 469.1091 (DMP) | 4529 |
| 21171 | 7590 | 08/10/2004 | EXAMINER | |
| STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005 | | | | KEENAN, JAMES W |
| ART UNIT | | PAPER NUMBER | | |
| | | 3652 | | |

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|----------|
| Office Action Summary | Application No. | Applicant(s) | <i>S</i> |
| | 10/003,239 | CROAD ET AL. | |
| | Examiner | Art Unit | |
| | James Keenan | 3652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 April 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) 20-24 is/are withdrawn from consideration.
 5) Claim(s) 16 and 17 is/are allowed.
 6) Claim(s) 1-15, 18, 19, 25 and 26 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 05 November 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/15/04 has been entered.

2. Claims 20-24 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made by original presentation in paper #6.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-4, 6-11, 18, 19, 25, and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no basis in the specification that the support limbs extend radially outward from the central hub at a "constant angle" relative to a plane of the processing surface, as now set forth in the indicated claims.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6-8, 11, 18, 19, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helms et al (US 4,869,801) in view of Kato et al (US 5,885,054) and Kikuta (JP 61-140432), all previously cited.

Helms et al show an apparatus for loading a substrate 8 onto a processing surface 36 in a processing chamber 1, including movable support 17-19 having an extended position for supporting a substrate above the processing surface and a retracted position in which the support is flush or below the support surface (note beveled edges 22 in figure 2), wherein a loading arm 7 moves between extended and retracted positions and cooperates with the support to load and unload substrates to and from the chamber.

Although the support comprises radially extending arms 17'-17'', they do not contact edges of different sized substrates; instead, pins 18 support the substrates from below.

Kato et al show a substrate support 1 comprising radially extending arms 12 which define a continuous support surface for supporting the edges of different sized substrates 5.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the apparatus of Helms et al by utilizing a substrate support comprising radially extending arms defining a continuous support surface for supporting the edges of different sized substrates, as shown by Kato et al, as this would provide greater flexibility and more precise positioning of the substrates.

Although it is considered a new matter limitation, it is nevertheless noted that Helms even as modified by Kato does not show the arms to have a constant angle relative to a plane of the processing surface.

Kikuta shows a wafer holder wherein arms 3 extend radially from a central hub 2. The arms define a continuous support surface and maintain a constant angle relative to a horizontal plane from which the wafer is picked up. This appears to be disclosed as an improvement and/or alternative to the embodiment shown in figures 17-18.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have additionally modified Helms such that the radially extending arms maintained a constant angle relative to the plane of the processing surface, as shown by Kikuta, as this would simply be an alternate equivalent means of structuring the support arms to enable substrates of varying size to be picked up.

Re claim 8, note clamp 35 of Helms et al.

7. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helms et al in view of Kato et al and Kikuta, as applied to claims 1 and 8 above, and further in view of Stevens et al (US 5,810,931), previously cited.

The modified apparatus of Helms et al does not show details of the clamping ring.

Stevens et al show a substrate clamp in the same environment comprising clamping element 52 extending radially inwardly from outer clamping ring 50 positioned radially outwardly from a processing surface.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the apparatus of Helms et al by constructing the clamp with a clamping element extending radially inwardly from an outer clamping ring positioned radially outwardly from a processing surface, as shown by Stevens et al, as this would simply be the substitution of a well known and art recognized clamping device, the use of which would neither require undue experimentation nor produce unexpected results.

8. Claims 5 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helms et al in view of Kato et al and Carr et al (US 6,158,951), previously cited.

The modified apparatus of Helms et al/Kato et al does not show the loading arm to have mountings which extend radially outward to define a number of mounting surfaces.

Carr et al show a wafer carrier having radially extending mounting elements 15 which have "a number of mounting surfaces" 50 thereon, as broadly claimed, each associated with a mounting plane.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the apparatus of Helms et al by constructing the loading arm with mountings which extend radially outward to define a number of mounting surfaces, as suggested by Carr et al, as this would provide greater precision during loading and unloading of the substrates to and from the processing chamber.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Helms et al in view of Kato et al, Kikuta, Carr et al, and Toshio (Japanese Patent Abstract Publication No. 08055814, previously cited by applicant).

This claim requires the limitations of independent claims 1 and 5 and therefore the obviousness rationale used in the rejection of these claims as set forth above in paragraphs 6 and 8 utilizing the Helms, Kato, Kikuta, and Carr references is incorporated herein. The claim additionally requires the mounting elements to define a plurality of mounting surfaces to accommodate different sized substrates.

Toshio shows a wafer handling system wherein both the support 7 and the robot hand 9 (mounting element) comprise a plurality of mounting surfaces (such as 13) on which different sized substrates may be accommodated.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have yet further modified the apparatus of Helms/Kato, etc., by providing plural mounting surfaces on the mounting elements, as shown by Toshio, as this would simply be a well known means of accommodating different sizes of wafers.

10. Claims 16-17 are allowed.

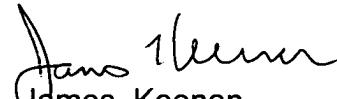
11. Applicant's arguments with respect to claims 1-4, 6-11, 18, 19, 25, and 26 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments regarding claims 5 and 12 have been fully considered but they are not persuasive. Applicant argues that Carr et al disclose the mounting elements to define only a single support plane. While this may be technically true, the mounting elements also have a chamfer area 65 which supports the substrate "in case the wafer is not exactly in the center". More importantly, however, is the simple fact that a single support plane is not precluded from the claims, because they merely require "a number of", not necessarily plural, mounting surfaces.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Keenan whose telephone number is 703-308-2559. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 703-308-3248. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James Keenan
Primary Examiner
Art Unit 3652

jwk
August 5, 2004